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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/433,730	11/03/1999	STEVEN T. JAFFE	33754/JWE/B6	2909

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EXAMINER

TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 07/30/2003

32

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/433,730

Applicant(s)

JAFJE ET AL. 

Examiner

YOUNG T. TSE

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10 and 106-111 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10 and 106-111 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>26</u> . | 6) <input type="checkbox"/> Other:  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 106 and 108-109 are objected to because of the following informalities:  
in line 3 of claim 106 and line 2 of both claims 108 and 109, the phrases "the second mixer" and "the first mixer" should be changed to – the second signal mixer – and – the second signal mixer –, respectively. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10 and 106-110 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, lines 5-6, the phrases "the first loop", "the second loop", and "the third loop" all lack antecedent basis.

Further, Applicants are requested to clarify the differences between "the first loop" and "the first nested tracking loop", "the second loop" and "the second nested tracking loop", and "the third loop" and "the third tracking loop".

Wherein the dependent claims 106-110 are depended directly or indirectly on the independent claim 10.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 111 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eyuboglu (Previously cited) and Wang (Newly cited).

Eyuboglu (U.S. Patent No. 4,745,625) discloses a receiver circuit (29) in Fig. 1 which clearly comprises a receiver front end (not shown) for providing a channel signal (14); a first tracking loop including a multiplier (40) and a carrier recovery (42) for acquiring carrier frequency lock of a predetermined frequency component  $X_k$ ; a second tracking loop including a linear equalizer (38), the multiplier (40), and a weight update circuit (46) in operative response to the predetermined frequency component  $X_k$ ; and a third tracking loop including a sampler A/D converter (34) and a timing recovery circuit

(36) for providing a symbol timing parameter or a timing recovery signal in operative response to the predetermined frequency component  $X_k$ .

However, Eyuboglu does not explicitly show or suggest that the received channel (14) provided from the receiver front end includes a pilot signal which is provided to each of the first, second, and third tracking loops.

Wang (U.S. Patent No. 6,356,598 B1) also discloses a receiver circuit in Fig. 1 which includes at least a receiver front end having an RF tuner (14) and an IF circuit (16); an ADC converter (19); a digital demodulator and carrier recovery (22) and segment sync and symbol clock recovery (24).

The detailed embodiment of the digital demodulator and carrier recovery (22) is shown in Fig. 3 and the detailed embodiment of the segment sync and symbol clock recovery (24) is shown in Fig. 4.

With respect to claim 111, although Eyuboglu does not explicitly show or suggest that the received channel (14) provided from the receiver front end includes a pilot signal which is provided to each of the first, second, and third tracking loops. Wang teaches that the passband IF output signal from unit (16) is converted to an oversampled digital symbol data stream by an analog to digital converter (19). The output oversampled digital data stream from ADC (19) is demodulated to baseband by an all digital demodulator/carrier recovery network (22). This is done by an all digital phase locked loop in response to the small reference pilot carrier in the received VSB datastream. See col. 2, lines 34-41. Demodulation in unit (22) is performed by an all digital automatic phase control (APC) loop to achieve carrier recovery. The phase

locked loop uses the pilot component as a reference for initial acquisition and a normal phase detector for phase acquisition. The pilot signal is embedded in the received datastream, which contains data exhibiting a random, noise-like pattern. See col. 3, lines 45-51. The pilot signal component is also provided to the segment sync and symbol clock recovery (24) for controlling the frequency of the ADC converter (19).

Therefore, it would have been obvious to one of ordinary skill in the art that the signal provided from the receiver front end of Eyuboglu's receiver is capable of containing data and pilot signal and provides the pilot signal to a demodulation circuit for carrier recovery and timing recovery of acquisition/tracking loops as taught by Wang in order to perform normal phase or frequency offset acquisition of the received signal.

***Allowable Subject Matter***

7. Claims 10 and 106-110 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to show or suggest that a receiver front end includes a first mixer located within a first tracking loop for acquiring a first carrier frequency lock; a second mixer located within a second tracking loop for providing a signal adapted to position the spectrum of a predetermined location of a predetermined frequency component; and a signal sampler located within a third tracking loop for defining a symbol timing parameter response to the predetermined frequency component.

Art Unit: 2634

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Young Tse** whose telephone number is **(703) 305-4736**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

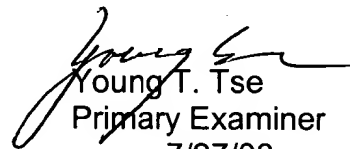
**(703) 872-9314 (for Technology Center 2600 only)**

**Or:**

**(703) 872-9315 (for amendments after final rejection only,  
please mark "EXPEDITED PROCEDURE")**

Hand-delivered responses should be brought to Crystal Park II, 2121  
Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
Young T. Tse  
Primary Examiner  
7/27/03